IN THE CLAIMS:

1. (Currently Amended) ~~Method~~ A method of producing nanostructures in membranes, ~~in which~~ comprising the steps of:

irradiating a membrane consisting of a polymer material ~~is irradiated~~ with ~~charged particles, especially~~ ions, to produce particle tracks~~,~~ ;

etching the particle tracks of the membrane ~~are etched using~~ with an etching liquid~~,~~ ; and

stopping the etching operation ~~is stopped using~~ with a stop liquid, such that asymmetrical structures are formed~~,~~ ;

~~in such a manner that asymmetrical structures are formed~~,

wherein ~~polyimide is used as the membrane material~~ said polymer material is a polyimide.

2. (Currently Amended) ~~Method~~ The method according to claim 1, wherein the polyimide ~~used is Kapton~~ is comprised of aromatic rings.

3. (Currently Amended) ~~Method~~ The method according to claim 1, wherein the etching liquid ~~used~~ is a NaOCl solution.

4. (Currently Amended) ~~Method~~ The method according to claim 1, wherein the stop liquid ~~used~~ is a reducing agent.

5. (Currently Amended) ~~Membrane~~ A membrane having asymmetrical pores, consisting of polyimide and produced in accordance with the method ~~according to~~ of claim 1.

6. (New) The method according to claim 4, wherein the reducing agent is a solution of the redox type comprising KI, NO_2^-, $S_2O_3^{2}$ or Mn^{2+}.